REMARKS

The claims have been amended to focus on the species of invention set forth in currently amended Claim 11. Withdrawn claims that are ultimately dependent on this claim have been retained. Consideration of these withdrawn claims is respectfully requested upon the allowance of Claim 11. No new matter has been introduced by this amendment.

Patentability over Slater et al.

The Examiner rejected Claim 11 along with several other cancelled claims, indicating only that Peptide 6 in Figure 2 of Slater et al. is SEQ ID NO:7. However, Claim 11 is directed to five or more contiguous amino acids of a particular stretch of SEQ ID NO:7 that is identified as SEQ ID NO:42, and now explicitly excludes the sequence of SEQ ID NO:7. Nothing in the Slater et al. reference specifically identifies this sequence. As such, Claim 11 is novel over Slater et al.

Moreover, nothing in Slater et al. even suggests the sequences of Claim 11. As discussed in Applicants' specification at page 8, the most preferred amino acid sequence comprises at least five amino acids derived from SEQ ID NO:42, as presently claimed. The claims also recite that the claimed peptides are "capable of interacting with T cells and modifying T cell function when incubated with cells from human subjects having a condition characterized by an aberrant, unwanted or otherwise inappropriate immune response to Hev b 5." As explained below, nothing in the Slater et al. reference would provide the necessary teaching to produce peptides having these claimed characteristics.

It is crucial to note that the studies of Slater et al. focus on *murine* reactivity to Hev b 5 as opposed to human reactivity to this molecule. This point is particularly significant since mice *do not* develop allergies or asthma. Accordingly, the murine model does not in fact provide a model of allergy or asthma and therefore cannot provide a sound or enabling means of screening for T cell epitopes linked to the development of allergy or asthma in *humans.* Still further, Slater *et al.,* although having analyzed overlapping 20-mer sequences of Hev b 5 in the context of the murine model, have not and could not have identified which sequences, if any, may correspond to human T cell epitopes, as presently claimed. A prediction could not even have been made since the response of Hev b 5 or its peptides in the context of mice or murine derived cells cannot be in any way regarded as indicative of the response that may be observed in humans since, as detailed above, mice do not provide a suitable model of allergy or asthma since they do not develop allergy or asthma. The mere publication of Hev b 5 sequences, irrespective of

whether they are depicted as a whole sequence or 20-mer peptides, does not of itself suggest the identification of the regions of the sequence which correspond to the *human* T cell epitopes.

Slater *et al.* do not even purport to have identified human Hev b 5 T cell epitopes and, consistent with the absence of any such disclosure, pages 2-3 of the present specification points out that although murine T cell epitopes of Hev b 5 have purportedly been identified in Balb/C mice, this does not provide a correlation between species in terms of the sharing of T cell epitopic regions on the Hev b 5 molecule. That is, the regions of a given molecule which are epitopic in one species may not correspond to the regions of the same molecule which are epitopic in another species. Significantly, the inventors in respect of the present application have confirmed that the immunodominant Hev b 5 T cell epitope does not correspond to the allegedly dominant murine T cell Hev b 5 epitope. This variation between human and murine immunodominance demonstrates the difficulties associated with elucidating some aspects of immune response mechanisms between species, such as the identification of epitopes. It also highlights that results obtained in one species neither disclose nor teach towards the findings which one may obtain in another species. Indeed, in the present case there would be a completely different finding observed in humans than in mice.

Enablement

The Examiner questioned the enablement for the "derivative, homologs, mutants, chemical equivalents or mimetics" of the recited sequences. The claims no longer contain reference to "derivatives", "chemical equivalents" and "mimetics" of the claimed peptide sequences. However, the claims have retained reference to "homologs" and "mutants".

The scope and meaning of the term "homologs" would be clearly understood by the person of skill in the art and is clearly defined in the specification at pages 21-22. Similarly, the text which appears in the last paragraph of page 26 clearly defines mutants as peptides which exhibit one or more structural features or functional activities which are distinct from those exhibited by its non-mutated peptide counterpart. Further, at page 37 of the specification, in the second paragraph, there is clear reference to the fact that the applicants envisage exposing an individual to mutant peptides which retain immunodominant T cell epitopes but possess abrogated IgE binding. This type of allergy treatment is extremely well known and widely used. Methods for scanning short peptides, such as 20-mer peptides, in order to identify appropriate residues for mutation and means for thereafter testing the functionality of those peptides in terms of their T and B cell reactivity are also extremely well known. Please also note that the

specification itself provides description of *in vitro* systems which can be utilized to test the reactivity of a given peptide.

We note that the Examiner has expressly stated that once one begins changing the amino acids of an MHC binding peptide, it is unpredictable what result one might obtain. For example, the Examiner states that in Karin *et al.* a single substitution of alanine for the naturally occurring amino acid at one position in the peptide totally ablates T cell proliferation but at the very next position significantly enhances disease progression. This may be true, but, in the present case the peptide molecules which are under analysis are relatively small and can be routinely and easily mutated and thereafter tested in well described *in vitro* assays such as those discussed in the specification. Accordingly, it is merely a matter of routine procedure to determine the functional outcome of a given mutation event. Thus, one of ordinary skill in the art would have no difficulty carrying out the full scope of the presently claimed invention, and the rejection under 35 U.S.C. 112 should be withdrawn.

CONCLUSION

In view of the foregoing, Applicant respectfully requests that this application be passed to issuance. If any points remain that can be resolved by telephone, the Examiner is invited to contact the undersigned at the below-given telephone number.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

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By: Daniel E. Altman

Daniel E. Altman
Registration No. 34,115
Attorney of Record
Customer No. 20,995
(949) 760-0404

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022806